REMARKS

This communication is a full and timely response to the aforementioned Office Action dated June 29, 2009. By this communication, claim 10 is amended. Claims 11-20 are not amended and remain in the application. Thus, claims 10-20 are pending in the application. Claim 10 is independent.

Reconsideration of the application and withdrawal of the rejections of the claims are respectfully requested in view of the foregoing amendments and the following remarks.

I. 35 U.S.C. § 103 Rejections

A. Claims 10-12 and 17-19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Brown et al. (U.S. Patent No. 6,881,096, hereinafter "Brown") in view of Ferguson (U.S. Patent No. 5,933,826).

Without acquiescing to this rejection, independent claim 10 has been amended to emphasize distinctions between the claimed invention and the applied references.

Device servers for connecting a device that has only a serial port to a computer network have been conventionally developed. For example, the vast majority of console ports that are provided on network appliances for making settings are serial ports. Serial ports have conventionally been connected via a device server to a network, such as the Internet, and a protocol is converted by the device server so that the console part of the network appliance can be accessed via the network and a parameter file can be set. Although a device server has conventionally been designed to convert a protocol and transfer data for a particular peripheral device connected to the device server, the interface controller chip of the device server will differ depending on the type of protocol to be converted, and therefore, it has been conventionally necessary to use different device servers for different peripheral devices. The same drawback occurs for device servers connected to peripheral devices that have parallel, analog and digital interface ports, for example.

Accordingly, it has been conventionally necessary to develop independent device servers for each peripheral device connectable to a device server due to the need to convert a protocol used by the peripheral device. Even if it is possible to

access a peripheral device from a computer terminal via a network, unless an application is developed to display and decode the data obtained from the peripheral device, it will not be possible to output or use the target device and communicate the data across the network. Even if it is possible to install functions for handling data according to many different protocols, it will not be possible to install all of the functions for determining processing and/or operations between interfaces of various peripheral devices or to install all the control logic required to do so in advance for such peripheral devices.

With reference to Figure 1, for example, exemplary embodiments of the present invention provide a multipurpose semiconductor integrated circuit device 10 that makes it possible to connect a variety of appliances and devices (e.g., peripheral devices) to a network easily and at low cost, and to make it easy to view the output of a variety of appliances using a browser, for example. In addition, the exemplary embodiments provide a multipurpose semiconductor integrated circuit device 10 that improves user programmability of a chip level or integrated circuit device level, and allows a user to easily change application programs of the chip, without having to use a compiler, for example.

With reference to Figure 1, the exemplary multipurpose semiconductor integrated circuit 10 includes a plurality of types of input/output interfaces 11-19. With reference to Figures 2 and 3, for example, the multipurpose semiconductor integrated circuit 10 of the disclosed embodiment is configured to control access to a non-volatile memory 23 that includes a file storage region for storing a script file 76 and firmware 60 in a non-volatile manner.

The firmware 60 includes program modules for functioning of an application layer. The script file 76 enables users to define, using script language, processes relating to data inputted and/or outputted through the plurality of types of input/output interfaces 11-19 for various appliances and/or peripheral devices. Thus, a user can generate, update and/or modify script files to be compatible with various applications used by the multiple semiconductor integrated circuit 10 and various peripheral devices connectable to the interfaces 11-19 of the multiple semiconductor integrated circuit, without being required to update firmware, which is conventionally required.

The exemplary embodiments provide that the script file 76 and firmware 60, which includes program modules for functions of an application layer, are stored at the same level, i.e., in the file storage region of the non-volatile memory 23. The exemplary multipurpose semiconductor integrated circuit 10 allows users to modify, update or rewrite the script file 76 on the same level as the firmware 60, but without exposing the firmware. By providing the user access to the script file 76, the user can access the script file 76 using one ore more of the types of input/output interfaces 11-19 to manipulate, update and/or maintain user logic, through open access and generation. Nevertheless, the firmware 60 is prevented from being exposed.

For instance, as illustrated in Figures 3 and 5, for example, the exemplary multipurpose semiconductor integrated circuit 10 includes a file management system 70 that admits access to the file storage region of the non-volatile memory 23 to manipulate script files relating to data inputted and/or outputted through any of the types of input/output interfaces 11-19, without exposing the firmware 60 to the user. In particular, the file management system 70 is configured to allow a user to manipulate the script file 76 stored in the file storage region in an exposed state without exposing the firmware 60 stored in the file storage region.

To provide users with the ability to manipulate the script file 76 stored in the file storage region while also preventing exposure of the firmware stored in the file storage region, an interpreter 90 is provided to execute only commands of the script file 76 relating to the input and/or output of data through the plurality of types of input/output interfaces 11-19 with the program modules, and to execute processes of inputting data and outputting data through the plurality of types of input/output interfaces 11-19 with the program modules. Accordingly, by limiting the functionality of the interpreter 90 to execute only commands of the script file 76 relating to the input and/or output of data through the interfaces 11-19 as well as processes relating to inputting and/or outputting of data through the interfaces 11-19, a user can easily update or modify a script file 76 to accommodate different types of interfaces 11-19, without unnecessarily exposing the firmware stored in the non-volatile memory 23, which is conventionally required to accommodate different types of interfaces 11-19 than those that were originally programmed in the firmware.

Therefore, the disclosed embodiments provide that access to the script file is open and made available so as to adjust the processes relating to data input and/or output through any of the types of interfaces 11-19, without exposing the firmware.

Claim 10 recites various features of the above-described exemplary embodiments. In particular, the multipurpose semiconductor integrated circuit device of claim 10 comprises a non-volatile memory including a file storage region for storing a script file and firmware in a non-volatile manner. Claim 10 recites that the firmware includes program modules for functioning of an application layer, and the script file defines, using script language, processes relating to data inputted and/or outputted through the plurality of types of input/output interfaces with the program modules.

In addition, the multipurpose semiconductor integrated circuit device of claim 10 comprises an interpreter that is configured to execute only commands of the script file relating to the input and/or output of data through the plurality of types of input/output interfaces with the program modules, and to execute processes of inputting data and outputting data through the plurality of types of input/output interfaces with the program modules.

Furthermore, the multipurpose semiconductor integrated circuit device of claim 10 comprises a file management system that admits access to the file storage region of the flash memory through at least one of the plurality of types of input/output interfaces. The file management system is configured to allow a user to manipulate the script file stored in the file storage region in an exposed state without exposing the firmware stored in the file storage region.

Brown discloses a serial-to-ethernet modulator converter (ethernet connector 10, see Fig. 1) that is housed completely within an ethernet jack. With reference to Figs. 3 and 4, the connector 10 includes printed circuit boards (PCB) 42, 50 that incorporate the electronic circuitry needed to complete a serial-to-ethernet conversion of data. PCB 50 includes a non-volatile memory (see Column 5, lines 50-67). The PCBs include programmable input pins (PIO) that are used to control devices which lack microcontrollers and hence cannot perform intelligent operations (see, e.g., Column 1, lines 23-27, and Column 2, lines 47-51). Consequently, according to the technique of Brown, it is necessary to expose any firmware stored in

the non-volatile memory of PCB 50 if the functions of the converter 10 are to be modified to accommodate different types of interface devices than the converter 10 was originally programmed to accommodate. Furthermore, any firmware stored in the non-volatile memory of PCB 50 must be modified or new firmware must be loaded through the PIO to modify the functions of the converter 10, since the stated purpose of the converter 10 is to provide intelligence to devices that otherwise lack a microcontroller.

On this basis alone, one skilled in the art would not have reason or been motivated to modify the converter 10 of Brown to include an interpreter to execute script files and a file management system that is configured to allow a user to manipulate such script files in an exposed state without exposing the firmware in the non-volatile memory of PCB 50. On the contrary, Brown discloses an opposite technique which requires editing of the firmware in order to modify the functions of the converter 10, such as to accommodate different input/output interface devices.

However, in disregarding these fundamental differences between Brown and the claimed invention, the Office applied Ferguson in striving to arrive at the claimed invention. As acknowledged by the Office, Brown does not disclose or suggest (1) a file storage region for storing a script file and firmware in a non-volatile manner, where the firmware includes program modules for functioning of an application layer, and the script file defines, using a script language, processes relating to data input and/or output through the plurality of input/output interfaces with the program modules; (2) an interpreter that executes the script file; and (3) a file management system that admits access to the file storage region of the non-volatile memory through at least one of the plurality of types of input/output interfaces, where the file management system is configured to allow a user to manipulate the script file stored in the file storage region in an exposed state without exposing the firmware stored in the file storage region, as recited in claim 10.

The Office alleged that Ferguson cures the deficiencies of Brown for failing to disclose features (1)-(3) of claim 10. This assertion is not supportable. Furthermore, Applicants respectfully submit that the Office's proposed modification of Brown to include features (1)-(3) would render the controller 10 of Brown inoperable, because, as mentioned above, Brown requires that functions of the converter 10 can be

modified only by loading the firmware through the PIO, thereby requiring exposure of the firmware.

It is well-settled that if a modification of an applied reference would change the principle of operation of the reference being modified, then there is no reason, suggestion or motivation to modify the reference in that manner. *See In re Ratti*, 123 USPQ 349 (CCPA 1959); MPEP 2143.01.VI. Furthermore, it is well-settled that if a proposed modification of a reference would render the reference being modified unsatisfactory for its intended purpose, then there is no reason, suggestion or motivation to make the proposed modification. *See In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984); MPEP 2143.01.V. Despite these well-settled provisions, the Office is proposing to not only change the principle of operation of Brown, but also render the converter 10 unable to be modified by prohibiting exposure of the firmware, when Brown requires exposure of the firmware to update the functions of the converter 10.

In any event, Ferguson does not cure the deficiencies of Brown for failing to disclose features (1)-(3) of claim 10, for at least the following reasons.

Ferguson discloses a distributed computer system 10, such as a client/server architecture, in which client applications or client software for interacting with human users are separated from server applications or server software for processing requests and information (see Column 2, lines 43-64 and Column 3, lines 45-59). In particular, Ferguson discloses that applications for different functions are stored in a hierarchical order in a plurality of nodes of a distributed directory 30, and only authorized users are permitted to access certain types of the software based on the user's access rights (see Column 4, line 37 to Column 5, line 23). An access control mechanism 50 limits access to certain types of the software in the hierarchical order based on security levels defining directory security (see Column 6, line 43 to Column 7, line 57). Each security level has associated object security rights limiting the ability of a user to access or manage objects within the distributed directory 30.

However, in contrast to claim 10, Ferguson does not disclose or suggest the feature of an interpreter that is configured to execute only commands of the script file relating to the input and/or output of data through the plurality of types of input/output interfaces with the program modules, and to execute processes of inputting data and outputting data through the plurality of types of input/output interfaces with the

program modules. In particular, similar to Brown, Ferguson does not disclose or suggest any interpreter that is limited to execute only commands of a script file relating to the input and/or output of data through a plurality of types of input/output interfaces.

Furthermore, by failing to disclose or suggest the features of the interpreter which facilitate protection of the firmware, Applicants respectfully submit that Ferguson also does not disclose or suggest the interrelationship between the interpreter and the file management system is configured to allow a user to manipulate the script file stored in the file storage region in an exposed state without exposing the firmware stored in the file storage region.

Therefore, Applicants respectfully submit that Ferguson does not cure the deficiencies of Brown for failing to disclose or suggest the features of the interpreter and file management system as recited in claim 10.

Accordingly, for at least the foregoing reasons, Applicants respectfully submit that claim 10 is patentable over Brown and Ferguson, since Brown and Ferguson, either individually or in combination, fail to disclose or suggest all the recited features of claim 10.

B. Dependent claims 13 -16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Brown in view of Ferguson and further in view of one or more of Steinberg et al. (U.S. Patent No. 6,628,235, hereinafter "Steinberg"), Herrero et al. (U.S. Patent Application Publication No. 2004/0133626, hereinafter "Herrero"), Mahajan (U.S. Patent No. 5,404,528), Kaji (Japanese Patent Application No. 2003-108539), and Howard et al. (U.S. Patent No. 6,954,850, hereinafter "Howard").

As discussed above, Brown and Ferguson, either individually or in combination, do not disclose or suggest the features and interrelating functionality of the interpreter and the script file included in the file storage region of the non-volatile memory, as well as the features of the file management system that is configured to allow a user to manipulate the script file stored in the file storage region in an exposed state without exposing the firmware stored in the file storage region, as recited in claim 10.

Similarly, Steinberg, Herrero, Mahajan, Kaji and Howard also do not disclose or suggest these features of claim 1. Consequently, Steinberg, Herrero, Mahajan, Kaji and Howard cannot cure the deficiencies of Brown and Ferguson for failing to disclose or suggest all the recited features of claim 10.

Therefore, Applicants respectfully submit that no obvious combination of Brown, Ferguson, Steinberg, Herrero, Mahajan, Kaji and Howard would arrive at the subject matter of claim 10, since these references, either individually or in combination, do not disclose or suggest all the recited features of claim 10.

Accordingly, for at least the foregoing reasons, Applicants respectfully submit that claim 10, as well as claims 11-20 which depend therefrom, are patentable over the applied references.

Dependent claims 11-20 recite additional distinguishing features and are also patentable by virtue of depending from claim 10. The foregoing explanation of the patentability of claim 10 is sufficiently clear such that it is believed to be unnecessary to separately demonstrate the additional patentable features of the dependent claims at this time. However, Applicants reserve the right to do so should it become appropriate.

II. Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. Accordingly, Applicants request a favorable examination and consideration of the instant application.

If, after reviewing this Amendment, the Examiner believes there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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